ABSTRACT

SIMULTANEOUS DETERMINATION OF EGCG AND CAFFEINE IN GREEN TEA SINENSIS AND ASSAMICA VARIETIES USING HPLC METHOD

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A validated HPLC method had been performed for simultaneous determination of EGCG and caffeine in green tea product from dry leaves of *Camellia sinensis* var. *sinensis* and *Camellia sinensis* var. *assamica*. The chromatography was performed on Waters Bondapak C18 column (3,9 x 300 mm, 10 µm particle size), detection at 273 nm using Photo Diode Array (PDA) detector with a mobile phase of methanol : acetic acid (2%, pH 3) : water (35:5:60, v/v/v) at flow rate of 0,5 ml/min. This HPLC method had been proved to be appropriate for simultaneous determination of EGCG and caffeine in green tea with correlation coefficients of 0,9990 and 0,9994 for EGCG and caffeine, respectively; recoveries of 100,3-105,6% for EGCG and 92,59-103,2% for caffeine; coefficient variations ≤5% for both compounds. This method showed detection and quantitation limits of 1,13 ppm and 3,77 ppm for EGCG; 0,32 ppm and 1,08 ppm for caffeine. EGCG and caffeine contained in green tea sinensis and assamica varieties were determined and compared. There were 4,23 %b/b ± 0,08 EGCG and 2,31 %b/b ± 0,13 caffeine in C.*sinensis* var. *sinensis*, and 7,57 %b/b ± 0,09 EGCG and 3,08 %b/b ± 0,05 caffeine in C.*sinensis* var. *assamica*. Independent sample T-test was indicated a significant differences in the relative proportions of EGCG and caffeine in the two varieties of *C. sinensis.*

Keyword: HPLC, EGCG, caffeine, green tea, sinensis, assamica